For permanent mounts, a drop or two of this material well mixed in the solution, is spread over a perfectly clean cover glass. Then,—

(1). Drop film side down in Schaudinn's fluid for fixation.

(2). One half hour in each,—30, 50, 70, 80% alcohol to absolute.

(3). Pass back thru these grades, one half hour in each, to distilled water.

(4). Place for 10 or 12 hours or more in 2% iron-alum solution.

(5). Stain in 1% hæmatoxylin for 24 hours.

(6). Differentiate by immersing in 2% iron-alum, watching the decolorization under the microscope until the nuclei are sharply differentiated.

(7). Wash, pass thru grades of alcohol,—15 minutes in each, —and clear in xylol. Mount in balsam.

FACTORS INFLUENCING THE SPORANGIAL CHARACTERS OF MYCETOZOA

A. E. Hilton (Jour. Q. M. C., Nov. 1916) gives a very suggestive analysis of the factors whose interplay produces the interesting variety we see in the sporangia of Myxomycetes. In some detail he shows how surface tension, gravity, lateral compression, capillarity, desiccation, internal precipitation of solids,—and all the conditions which modify any of these,—operate to produce the variety of depressed, globular, cylindrical forms of these plants, with or without stalks. It is a very good illustration of an intelligent effort to show how "simple combinations of well known forces produce complicated results."

PROTOPLASMIC CONTINUITY IN EARLY EMBRYONIC DEVELOPMENT

Cameron and Gladstone (Jour. Anat. Physiol. Vol. 50: p. 207) advance the view that the blastoderm of early animal embryos does not show the cell demarcations which we habitually assume. On the contrary the cytoplasm surrounding the nuclei is continuous, and the nuclei themselves should be looked upon as the units. They

regard the typical cellular structure as a derived and somewhat degenerating process. Regarding the nucleus as central, both structurally and functionally, the nascent endoplasm immediately surrounding the nucleus is derived from the nucleus which has manufactured it from the food taken in by the cytoplasm. The nascent endoplasm is gradually transformed into the outer maturer endoplasm, and this gives rise in turn to the ectoplasm. The functions are less and less active, passing from nucleus to ectoplasm. The authors therefore look upon the early embryo as a differentiating plasmodium. They claim to have traced this condition into the three-layered stage in vertebrate embryos.

FACTORS CONTROLLING THE RATE OF REGENERATION

Zeleny (Ill. Biol. Monog., Aug. 1916) continues his studies on regeneration and the factors, internal and external, that may influence it. In this monograph of 170 pages the author investigates the following points upon amphibian larvæ:—

1. Rate of regeneration from new tissue compared with that from old tissue. The general conclusion is that the rate of regeneration is independent of the age of the cells near the cut surface, except in those early stages where cell migration rather than cell division secures the regeneration, in which case the rate of regenertion may be greater from new tissue.

2. Rate of regeneration as determined by successive removal. The rate of successive regeneration is found to decrease with successive removals in the same individual. The factor of age of course enters into such a case. By eliminating the age factor the investigator found that there is no decrease in rate for the second and third regenerations. Indeed the second has an advantage over the first, and the third somewhat less over the second.

3. The effect of the level of the cut on the rate and completeness of regeneration. In general it was found that the rate of regeneration varies directly with the amount of material cut away,—the deeper the cut the more the regeneration both in rate and amount. But in any event the regeneration stops short of complete replacement.